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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,163	06/27/2001	Sadeg M. Faris	0126/1101.014	4511

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EXAMINER

NGUYEN, HOAN C

ART UNIT PAPER NUMBER

2871

DATE MAILED: 04/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,163

Applicant(s)

FARIS ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 16-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 9. 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

Applicant's election of Species of the second embodiment in Paper No. 11 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 16-20, 22, 24-26, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over YOKOO et al. (JP406138458A) in view of Chung et al. (US4456336).

YOKOO et al. teach (Figs. 1-3) a backlight for a liquid crystal display employing light recycling, said backlight comprising:

- a light source 1;
- a bundle of optical fibers 3,
 - said optical fibers including an optically upstream side and an optically downstream side,
 - said optical fibers further including a cladding material 3b;
- a reflective layer 4b;

- one lenses 2b configured to couple light from said light source into said optically upstream side of said optical fibers (claim 18).

wherein

- said bundle of optical fibers is configured to receive light from said light source and distribute the light to said reflective layer.
- said light source is an incandescent lamp, which is fluorescent lamp stimulated by heat radiation according to claim 17.
- said optically upstream side of said optical fibers is positioned in operative engagement with said light source for coupling light therein (claim 19).
- said optically downstream side of said optical fibers are distributed in a substantially orderly pattern on said reflective layer, said orderly pattern being selected from the group comprising hexagonal, rectangular, square, symmetrical, triangular, and octagonal (claim 20).
- said cladding is removed from a portion of said optically downstream side 4a of said optical fibers (claim 22).

However, YOKOO et al. fail to disclose a backlight for a liquid crystal display with a reflective layer fabricated from a highly reflective material, said material being selected from the group comprising aluminum, silver, and barium sulfate, magnesium oxide, and organic materials, wherein said reflective layer reflects at least 95% of light energy incident thereon.

Chung et al. teach (col. 1 lines 28-32) a backlight for a liquid crystal display with a reflective layer fabricated from a highly reflective material that is made of barium sulfate; wherein said reflective layer reflects at least 95% or near 100% of light energy incident thereon.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a backlight for a liquid crystal display as YOKOO et al. disclosed with a reflective layer fabricated from a highly reflective material that is made of barium sulfate; wherein said reflective layer reflects at least 95% or near 100% of light energy incident thereon for excellent off-axis viewing.

2. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over YOKOO et al. (JP406138458A) in view of Chung et al. (US4456336) as applied to claims 16 and 31 and in further view of Sansom (US4417412).

Sansom teaches (col. 1, lines 45-63) a display with the optically downstream side of said optical fibers are distributed in a substantially random pattern on said reflective layer for reforming the specific image.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a backlight for a liquid crystal display as YOKOO et al. disclosed with the optically downstream side of said optical fibers are distributed in a substantially random pattern on said reflective layer for reforming the specific image.

3. Claims 23, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over YOKOO et al. (JP406138458A) in view of Chung et al. (US4456336) as applied to claims 16 and 31 and in further view of Dumont (US6004315A).

Dumont teaches a portion of said optically downstream side of said optical fibers roughening and removing a cladding material from a portion of said optically downstream side of said optical fibers with mechanically abrading the downstream side of the optical fibers for light diffusing.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a backlight for a liquid crystal display as YOKOO et al. disclosed with a portion of said optically downstream side of said optical fibers roughening and removing a cladding material from a portion of said optically downstream side of said optical fibers with mechanically abrading the downstream side of the optical fibers for light diffusing.

4. Claims 27-30 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over YOKOO et al. (JP406138458A) in view of Chung et al. (US4456336) as applied to claims 16 and 31 and in further view of Faris (US6188460B1).

Faris teaches (Figs. 2, 2A-B, 8, 8A-B) a backlight further comprising a substantially non-absorptive filtering array; and a broadband polarizer 11 for improved image contrast.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a backlight for a liquid crystal display as YOKOO et al. disclosed with a substantially non-absorptive filtering array; and a broadband polarizer 11 for improved image contrast.

5. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over YOKOO et al. (JP406138458A) in view of Chung et al. (US4456336) as applied to claims 16 and 31 and in further view of OBUKA (JP357089706A).

OBUKA teaches the selectively roughening and removing comprises immersing said downstream side of said optical fibers into an aqueous solution of hydrofluoric acid for reducing the loss of light by eliminating unnecessary propagation modes by forcing light entering cladding to radiate out of an optical fiber by roughening the cladding which covers the external circumference of the core of the optical fiber .

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a backlight for a liquid crystal display as YOKOO et al. disclosed with the selectively roughening and removing that comprises immersing said downstream side of said optical fibers into an aqueous solution of hydrofluoric acid for reducing the loss of light by eliminating unnecessary propagation modes by forcing light entering cladding to radiate out of an optical fiber by roughening the cladding which covers the external circumference of the core of the optical fiber .

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Yamazaki (US6407785B1) disclosed a reflection type semiconductor display device taking in light other than incident light on a liquid crystal panel to be an auxiliary light source using optical fibers.

Davenport et al. (US5101325A) disclose the light guides may be optical fibers. The light guides or fibers are fused or mated in some other way to an edge or edges of an optically clear plastic wedge or wedges.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

chn
April 13, 2003


TOANTON
PRIMARY EXAMINER